



Customers consult green finance related services at a banking outlet in Huzhou, a green finance pilot city in Zhejiang province. TAN YUNFENG / FOR CHINA DAILY

By CHEN JIA

China's green finance market is unveiling huge business opportunities for global capital as infrastructure and technology upgrade programmes await funds to cut carbon emissions in the next few decades, experts said.

Tsinghua University in Beijing has forecast that to achieve net zero carbon emissions, or carbon neutrality, by 2060, about 138tn yuan (\$21.4tn) will be invested. This would mean funds equal to more than 2.5 per cent of the country's annual GDP should be invested into this area a year.

The investment group Goldman Sachs recently modeled a potential path to net zero carbon by sector and technology, saying \$16tn in clean technology infrastructure investment in China by 2060 could create 40m new jobs and drive economic growth.

Global investors said the goal is very ambitious when the top Chinese leadership announced in September an aim to reach a peak in carbon dioxide emissions before 2030 and achieve net zero carbon emissions 30 years later. The 14th Five-Year Plan period (2021-25) will be crucial for China's climate efforts, they said.

Based on that, Goldman Sachs developed an annual decarbonisation investment profile that projected an acceleration in investments to peak by 2040, driven largely by the initial infrastructure expansion required for power networks, charging infrastructure and heating pipeline infrastructure. The investment will accelerate the penetration of electrification and clean fuel substitution in transport, heating and general industry, it said.

Chinese financial regulators see this ambitious goal as a milestone that may require a fundamental transformation of entire social and economic systems, with the financial system playing a crucial role.

Yi Gang, governor of the People's Bank of China, the central bank, previously talked about the major tasks of the year ahead and highlighted the



Officials conduct pollution checks along a river in Huzhou. XU YU / FOR CHINA DAILY



An employee works in a factory of a new energy vehicle battery company in Huzhou in July. TAN YUNFENG / FOR CHINA DAILY

China's green-finance market continues to grow, supported by government policies and initiatives with banks playing a dominant role."

Jia Jingwei, a sustainable finance analyst at Fitch Ratings, a global credit ratings agency

As carbon emissions dissipate, investment flows in

14th Five-Year Plan period (2021-25) crucial for country's climate change initiative

138 trillion yuan

estimated input to achieve net zero carbon emissions, or carbon neutrality, by 2060

China will build carbon emission trading markets and develop carbon futures trading, Mr Yi said.

Michele Della Vigna, an economist with Gold-

man Sachs International, said: "To achieve this goal will require China to embark on an ambitious multi-decade effort to transform its economy and energy ecosystems. Net zero would have to serve as a guiding principle for policymaking that is comprehensively embedded into structural reforms, investment policies and innovation priorities."

Tianneng Co, a lithium battery producer in Huzhou, a green finance pilot city in Zhejiang province, raised about 4.87bn yuan from its listing on the Science and Technology Innovation Board of the Shanghai bourse on January 18. It

then became the first company in this sector to issue both A and H shares.

The funds will be injected into projects including green intelligent manufacturing technology transformation, high-energy power lithium battery cells and some projects to improve the innovation capacity of national technology centres, Zhang Tianren, the company's chairman, said.

Tianneng, a company shifting to a green development model and away from producing traditional batteries, is supported by financial incentives adopted by the central bank and the local government in Huzhou, and draws on lower-cost equity and debt financing instruments to expand production lines, said Chang Qing, vice-president and chief financial officer of Tianneng Co.

Last year China's outstanding green loans exceeded 11tn yuan, ranking top globally, while outstanding green bonds stood at more than 1tn yuan, the world's second highest, the central bank said.

"China's green-finance market continues to grow, supported by government policies and initiatives, with banks playing a dominant role," said Jia Jingwei, a sustainable finance analyst at Fitch Ratings, a global credit ratings agency.

"Domestic and foreign investors will drive standardisation and environment, social and governance integration in onshore greenbond markets."

Pandemic gives online learning a growth burst

By CHENG YU

Time was ticking and the day's deadline was an hour off, but Tang Zhumei, an accountant and a 39-year-old mother in Beijing, suddenly stopped auditing dozens of financial statements piled on her desktop.

On receiving a pop-up notification she reached for her smartphone and, in a jiffy, bought an online English-language course for her 11-year-old daughter.

The 60-session course set her back 9,000 yuan (\$1,400) but Ms Tang said she believes it is worth every penny.

In China, online consumption as part of the national consumption upgrade takes many forms. Top-quality education is par for Covid-19-era online shopping as a study-from-home regimen has become common.

Demand outstrips supply, and market forces could send prices soaring, keeping consumers such as Ms Tang on their toes, always on the lookout for the next big deal, limited-time offers and discount-price promotions.

One such offer came Ms Tang's way from an extremely popular teacher working with an equally popular e-learning platform. She gladly grabbed it with both hands.

The Covid-19 pandemic and disrupted academic schedules are encouraging millions of Chinese parents to spend lavishly to ensure their children receive online education.

Industry data showed that 50bn yuan was invested in the segment last year. That was more than what the industry had received from investors in the previous 10 years.

The proposals for the 14th Five-Year Plan (2021-



A visitor (right) tries out a livestreamed class broadcast from a studio of online tutoring firm Yuanfudao at the China International Fair for Trade in Services. MAO XUQIAN / FOR CHINA DAILY

25) highlighted that the country is expected to "give full play to the advantages of online education, so as to improve the lifelong learning system and build a learning society".

It was the first time that the government's economic development plan highlighted the role of online education.

China's online education sector is estimated to achieve sales revenue of 485.8bn yuan by the end of last year. In 2019, it was 404bn yuan.

The total number of users is likely to reach 351m, the consultancy iiMedia Research said.

Industry insiders said the sector is outgrowing its phase of wild swings and settling into an orderly, sustained boom.

As both students and parents have become more familiar with virtual classrooms, demand is rising for higher-quality lessons, more technological breakthroughs and more innovative e-learning methods.

Zuoyebang, China's largest online education startup in terms of users, raised \$1.6bn in December in its series E+ round of funding.

The funding round followed that of Yuanfudao. The education startup raised \$2.2bn in two rounds in October. Such capital infusions contrast with the less than \$500m that top education startups mustered a year ago.

"Education firms' funding rounds have become fewer, but the average amount of money raised in a single round has grown larger than expected," said Jiang Kaiyang, director of the investment bank Taihecap. "There is extreme differentiation in financing in the education sector. While leading education firms receive funding easily, smaller ones are facing difficulty."

Chai Mingyi, associate vice-president of New Oriental Education and Technology Group, said: "It reflected a change in attitude in the education sector where investors no longer chase short-term benefits. They prefer gradual investments for long-term value."

Zhou Feng, chief executive of NetEase Youdao, the education unit of NetEase Inc, said: "The capital market supported online education companies as investors are optimistic about the development prospects of the sector, which is essentially their estimate of the scale of a company in the field."

"It means that the online education sector is far from reaching the zero-sum stage. It is still an incremental market and has great room for growth."

THE SAVING POWER OF NEEDLE MAGIC

By LI YINGXUE and FENG ZHIWEI

Almost every Huayao woman can do *tiaohua*, or cross-stitching, and each piece embodies its maker's own understanding of, and reflections on, life.

The Huayao people are an ancient branch of the Yao ethnic group. Huxingshan Yao town is home to about 7,000 Huayao people, but it was also one of the most impoverished and remote towns in Longhui county, Shaoyang, Hunan province.

For the best part of a decade a team from Hunan University has been helping Baishuidong village in the town overcome poverty and inherit the cross-stitching skill by promoting its cultural and creative products and boosting local tourism.

Yang Min, the head of the town, said, "The goal has changed from poverty alleviation to overcoming poverty, which inspires our villagers, and it is the most precious treasure that Hunan University leaves us."

There is no written language for the Huayao people who live in remote mountain settlements, so it is difficult to save its ethnic culture.

The skill of the Huayao's cross-stitch work, which has a history stretching back a thousand years, fills the gap to some extent — it has played an important role in Huayao culture being passed down and the history of the Huayao people being recorded.

However, the new generation of Huayao women yearn for more urban fashions. Some do not wear their traditional outfits anymore, and there is a lack of passion for needlework.

Making a set of traditional Yao clothes requires heavy needlework — a skirt, alone, needs at least 300,000 stitches, and it takes a master of the craft between six and 12 months to complete.

Many Huayao women shy away from the craft because of the complicated needlework, and another challenge for Huayao cross-stitch work is that it's not easy to get onto the market.

The poverty alleviation team from Hunan University began helping in Baishuidong village in 2012. When it first arrived it eyed the Huayao cross-stitch work as a potential revenue stream.

It formed a design team to develop cultural and creative products based on intangible cultural heritage projects, including Lunar New Year paintings and the cross-stitching skills of Huayao people.

As well as the more than 140 cultural and creative products the team designed, it also established a stitching design studio for *tiaohua* and an exhibition space for Huayao culture.

"We used to just design special packaging for local products, but that doesn't add value to the products themselves, and is neither sustainable nor recyclable," said Wang Xile, a member of the team.



Huayao craftswomen make intricate cross-stitch patterns in Baishuidong village, Hunan province. PROVIDED TO CHINA DAILY

When she travelled to Baishuidong several years ago as a bachelor student majoring in visual communication, she was attracted by the unique Huayao cross-stitching skill.

After spending time in the village, she decided to set the research direction of her master's study towards the inheritance and protection of intangible cultural heritage.

"Now, we want to innovate and make a collaborative effort to change," Ms Wang said. "We are responsible for understanding the customers' requirements with regard to the quantity and the sizes. Then we let the women create the patterns they see fit so that each product is unique."

Yang Liaohua, a villager in Baishuidong, draws a small income from growing honeysuckle. The Hunan University's team reached out to her and asked an inheritor of Huayao cross-stitch to teach her the skill free of charge.

Ms Yang learned very quickly and the needlework now brings her extra income of more than 10,000 yuan (\$1,550) a year.

The team also developed an app to educate children about the Huayao cross-stitch skill and Huayao culture.

"The women use colourful threads to make many small cross-stitches that form bigger patterns and create unique pieces of work, but regarding the inheritance of the skill, there are many difficulties, such as the language barrier," Ms Wang said.

"So, we want to design a game to let the children learn about Huayao culture and the cross-stitch skills by raising their interest and lowering the difficulty."

Zhang Duoduo, associate professor at Hunan University's School of Design, said that as

well as developing the app for preschool children, the team is designing a board game about Huayao culture.

"People are the key to inheriting intangible cultural heritage, and our idea is to develop digital education products designed to attract users from an early age," Ms Zhang said.

She hopes to take Baishuidong as a starting point and expand this model of combining the creative inheritance methods and art education with intangible cultural heritage to all the impoverished regions in China with children who are left behind by parents seeking work elsewhere.

In 2018, the results of their team's study on Huayao cross-stitch in Southwest China was presented at the 20th International Conference on Human-Computer Interaction held in Las Vegas.

Huxingshan Yao town also takes full advantage of its cultural resources to develop its tourism, which provides a path to overcome poverty and achieve prosperity.

In 2008, Huayao folk songs from Longhui county and the traditional cross-stitch were added to the national intangible cultural heritage list.

Cultural heritage, such as the colourful wedding customs of the Huayao people, provides unique tourism resources for the village.

In 2020, a summer culture and tourism festival took place in Longhui county to draw attention to the cultural heritage of the many villages in Hunan province.

The infrastructure in the town, including the roads, houses and electric power grid, keeps improving, as do local public services. The town has become a model "beautiful village" and has been attracting a growing number of tourists.